

# Testicular Microanatomy of *Rhabdophis tigrinus* During the Breeding and Nonbreeding Seasons

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## Background

- *Rhabdophis tigrinus*, the Tiger Keelback, is native to East and Southeast Asia
- It preys on amphibians, including the Japanese toad, *Bufo japonicus*
- It secretes cardiotoxic steroids known as bufadienolides (BDs) from its skin
- Consumption of BDs is typically fatal in other snake species, but, *R. tigrinus* displays resistance to these toxins
- After consuming toads, *R. tigrinus* sequesters BDs into glands on its neck
- The adrenal glands of *R. tigrinus* are enlarged in comparison to similar species

## Methods

- Sectioned paraffin-embedded post-testis and adrenal tissues (10  $\mu$ m) from eight adult male *R. tigrinus* (four from each season)
- Visualized tissues using a modified trichrome stain (Crowder 1983)
- Randomly selected and measured the diameter and thickness of the seminiferous tubules and the diameter of the efferent tubules and testes

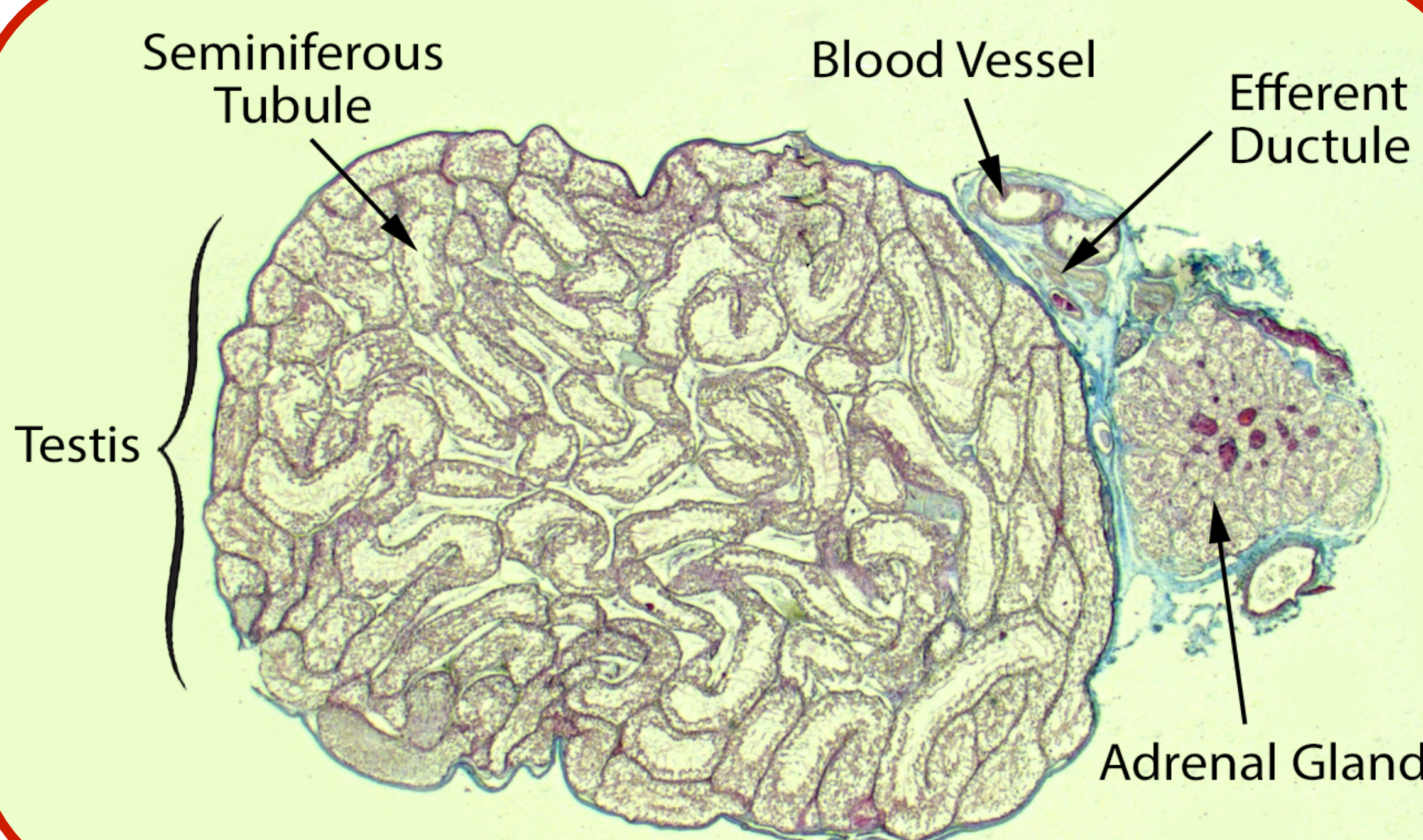
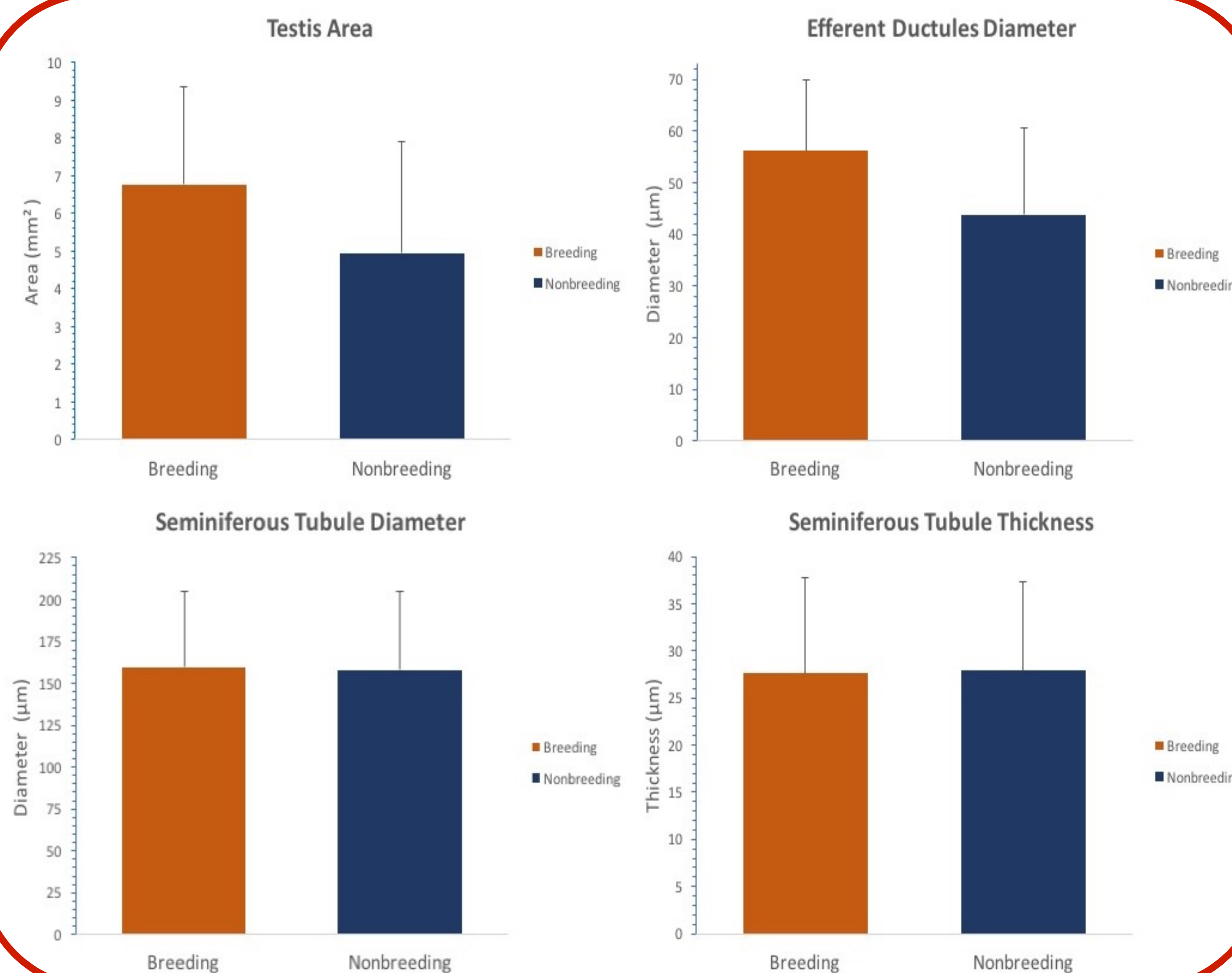


## Future Work

- Acquire measurements of two additional males per time period
- Use immunohistochemistry to localize the BDs within the tissue
- Stain ductus deferens, anterior testis, kidney and cloacal tissue

## Research Question

Are there differences in the microanatomy of *R. tigrinus* testes between the breeding and nonbreeding seasons?



## Conclusion

ANCOVAs revealed no significant effect of breeding status on testis, efferent ductule or seminiferous tubule cross-sectional areas or on seminiferous tubule thickness.

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Literature cited: 1. Crowder, CH. 1983. The trichrome stain: a modification. Journal of Histotechnology 6(3): 133-134.

2. Hutchinson et. al. 2007. Dietary sequestration of defensive steroids in nuchal glands of the Asian snake *Rhabdophis tigrinus*. PNAS.

